

# PALEONTOLOGICAL RESOURCE IMPACT MONITORING PROGRAM FOR THE RENAISSANCE RANCH PROJECT

SP00333A01; GPA200004; CZ2000016;  
CEQ200059; BGR \_\_\_\_\_  
RIVERSIDE COUNTY, CALIFORNIA

APNs 393-120-010 to -012, 393-150-001 to -075, 393-180-002 to -010, 393-190-016 to -024, 393-230-028, 393-231-001, 393-250-001 to -041, 393-260-001 to -068, 393-270-001 to -027, 393-280-001 to -087, 393-290-001 to -055, 393-300-001 to -028, 393-440-005 and -006, 393-441-001 and -005, 394-050-005, and 394-080-014

Project Site Location: Section 17, Township 5 South, Range 5 West,  
San Bernardino Base and Meridian, as shown on the *Alberhill* USGS Quadrangle Map

Prepared on Behalf of:

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Prepared by:

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February 5, 2021

## **Paleontological Database Information**

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- Report Date:*** February 5, 2021
- Report Title:*** Paleontological Resource Impact Mitigation Program for the Renaissance Ranch Project (SP00333A01; GPA200004; CZ2000016; CEQ200059; BGR\_\_\_\_\_), Riverside County, California
- Prepared on behalf of:*** Visser, LLC and Hill Country S.A., Ltd.  
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(951) 955-3200
- Assessor's Parcel Numbers:*** 393-120-010 to -012, 393-150-001 to -075, 393-180-002 to -010, 393-190-016 to -024, 393-230-028, 393-231-001, 393-250-001 to -041, 393-260-001 to -068, 393-270-001 to -027, 393-280-001 to -087, 393-290-001 to -055, 393-300-001 to -028, 393-440-005 and -006, 393-441-001 and -005, 394-050-005, and 394-080-014
- USGS Quadrangle:*** *Alberhill, California (7.5 minute)*
- Study Area:*** 156.7 acres
- Key Words:*** "High A" and "Low" paleontological resource sensitivities; Riverside County; Temescal Valley; Quaternary very old alluvial fan deposits; Quaternary young alluvial fan deposits; full-time monitoring.

## **I. INTRODUCTION AND LOCATION**

This paleontological resource impact mitigation program (PRIMP) report has been completed for the Renaissance Ranch Project, located within the Temescal Canyon area of unincorporated Riverside County, California (Figures 1 and 2 in Appendix B). The 156.7-acre Renaissance Ranch Project (Tract 37715), situated just west of Interstate 15 and east of the intersection of Horsethief Canyon Road and Dragon Fly Court, proposes the development of the subject property for industrial and commercial uses. The project lies in Section 17, Township 5 South, Range 5 West of the San Bernardino Base and Meridian, as shown on the USGS 7.5-minute *Alberhill, California* topographic quadrangle map (Figure 2 in Appendix B). The property was previously intended for residential development.

Implementation of this PRIMP addresses the potential for scientifically significant fossil remains that might be uncovered by earth-moving activities at previously unknown fossil sites within the project area. Without the PRIMP, fossil remains and associated specimen and corresponding geologic data would be lost to excavation activities and unauthorized fossil collecting. The recommendations in this PRIMP are consistent with the intent and provisions of the California Environmental Quality Act, environmental guidelines of the County of Riverside, and the procedures outlined by the Society of Vertebrate Paleontology (2010) and should be implemented for any mass grading and excavation-related activities, including utility and storm drain trenching, during construction within the project. This PRIMP will: identify any documented, nearby fossil localities; summarize the geology underlying the site and assess the potential to contain paleontological resources; evaluate the potential of project activities to negatively impact fossil resources that might exist below the project; and provide recommendations for mitigation of potential impacts, if appropriate.

## **II. REGULATORY SETTING**

The California Environmental Quality Act, which is patterned after the National Environmental Policy Act, is the overriding environmental document that sets the requirement for protecting California's cultural and paleontological resources. The document does not establish specific rules that must be followed, but mandates that governing permitting agencies (lead agencies) set their own guidelines for the protection of nonrenewable paleontological resources under their jurisdiction.

### **State of California**

Under Guidelines for the Implementation of the California Environmental Quality Act, as amended March 29, 1999 (Title 1, Chapter 3, California Code of Regulations: 15000 et seq.), procedures define the type of activities, persons, and public agencies required to comply with the California Environmental Quality Act. In the Environmental Checklist, one of the questions to

answer is, “Will the project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?” (Section 15023, Appendix G, Section XIV, Part a). California Public Resources Code (PRC) Section 5097.5 states:

- a) No person shall knowingly and willfully excavate upon, or remove, destroy, injure or deface any historic or prehistoric ruins, burial grounds, archaeological or vertebrate paleontological site, including fossilized footprints, inscriptions made by human agency, rock art, or any other archaeological, paleontological or historical feature, situated on public lands, except with the express permission of the public agency having jurisdiction over such lands. Violation of this section is a misdemeanor.
- b) As used in this section, “public lands” means lands owned by, or under the jurisdiction of, the state, or any city, county, district, authority, or public corporation, or any agency thereof.

**County of Riverside**

According to County of Riverside Environmental Impact Report No. 521:

The County of Riverside has existing programs in place that ensure applicable policies are imposed once a development proposal triggers a specific policy or policies. The need for specific policies is determined through subsequent CEQA analysis performed for site-specific projects. These measures are implemented, enforced and verified through their inclusion into project conditions of approval. (County of Riverside 2015)

For example, Policy OS 19.6 states:

Whenever existing information indicates that a site proposed for development has high paleontological sensitivity as shown on Figure OS-8, a paleontological resource impact mitigation program (PRIMP) shall be filed with the County Geologist prior to site grading. The PRIMP shall specify the steps to be taken to mitigate impacts to paleontological resources. (County of Riverside 2015)

An online, interactive, paleontological sensitivity mapping database is maintained by the County of Riverside as a research tool to access the County’s assignment of levels of paleontological sensitivity to the various geologic formations within the county (County of Riverside Land Information System n.d.). This is specifically addressed in Section V.

Paleontological resources are addressed under the 2008 Multipurpose Open Space Element of the Riverside County General Plan, Policy OS 19.9, which states:

This policy requires that when existing information indicates that a site proposed for development may contain paleontological resources, a paleontologist shall monitor site grading activities, with the authority to halt grading to collect uncovered paleontological resources, curate any resources collected with an appropriate repository, and file a report with the Planning Department documenting any paleontological resources that are found during the course of site grading. (County of Riverside 2008)

The “SABER Policy” (Safeguard Artifacts Being Excavated in Riverside County), enacted in October 2011 by the Riverside County Board of Supervisors, requires that any paleontological resources found or unearthed in the county of Riverside be curated at the Western Science Center on Searl Parkway in the city of Hemet.

### **III. GEOLOGY**

Regionally, the project lies on the western edge of the Perris Block, a structural block bounded on the west by the Elsinore fault zone and on the east by the San Jacinto fault zone (Morton and Miller 2006). The project is located within Temescal Valley, the erosional expression of the path of the tectonically active Elsinore fault zone. Within the fault zone in the vicinity of the project are various deposits of Quaternary-aged (<1.8 million years) surficial alluvial deposits bordered by much older outcrops of several Mesozoic rock units to the northeast and southwest that compose the local mountains (Figure 3 [Appendix B], after Morton and Miller 2006; Gray et al. 2002). Also present within the fault zone and near the project are discontinuous outcrops of Mesozoic metasediments (green-gray area labeled “TRmu” on Figure 3 in Appendix B) and volcanics (blue area labeled “Kvsp” on Figure 3), and the Paleocene-aged Silverado Formation (unlabeled area colored olive brown at the lower right corner of Figure 3 in Appendix B).

The majority of the project is situated over Quaternary very old (middle to early Pleistocene) alluvial-fan deposits (brown area labeled “Qvof” on Figure 3 in Appendix B), composed of moderately to well consolidated silt, sand, gravel, and conglomerate (Morton and Miller 2006). Also present at the northwest corner of the project are Quaternary (Holocene and late Pleistocene) young sandy alluvial-fan deposits (“Qyfa” on Figure 3 in Appendix B), while Quaternary (Holocene and late Pleistocene) young sandy wash deposits (“Qywa” on Figure 3 in Appendix B) are present in drainage channels at the eastern edge.

### **IV. PALEONTOLOGICAL RESOURCES**

#### **Definition**

Paleontological resources are the remains of prehistoric life that have been preserved in geologic strata. These remains are called fossils and include bones, shells, teeth, and plant remains

(including their impressions, casts, and molds) in the sedimentary matrix, as well as trace fossils such as footprints and burrows. Fossils are considered older than 5,000 years of age (Society of Vertebrate Paleontology 2010), but may include younger remains (subfossils) when viewed in the context of local extinction of the organism or habitat, for example. Fossils are considered a non-renewable resource under state and county guidelines (Section II of this report).

### **Professional Standards**

The Society of Vertebrate Paleontology drafted guidelines outlining procedures that include:

[E]valuating the potential for impacts of a proposed action on paleontological resources and for mitigating those impacts. Impact mitigation includes pre-project survey and salvage, monitoring and screen washing during excavation to salvage fossils, conservation and inventory, and final reports and specimen curation. The objective of these procedures is to offer standard methods for assessing potential impacts to fossils and mitigating these impacts. (Society of Vertebrate Paleontology 2010)

The guidelines include four categories of paleontological sensitivity for geologic units (formations) that might be impacted by a proposed project, as listed below:

- *High Potential*: Rock units from which vertebrate or significant invertebrate, plant, or trace fossils have been recovered.
- *Undetermined Potential*: Rock units for which little information is available concerning their paleontological content, geologic age, and depositional environment, and that further study is needed to determine the potential of the rock unit.
- *Low Potential*: Rock units that are poorly represented by fossil specimens in institutional collections or based upon a general scientific consensus that only preserve fossils in rare circumstances.
- *No Potential*: Rock units that have no potential to contain significant paleontological resources, such as high-grade metamorphic rocks and plutonic igneous rocks.

### **Fossil Records Search**

Previous record searches from past Brian F. Smith and Associates, Inc. (BFSA) projects conducted by the Vertebrate Paleontology Section of the Natural History Museum of Los Angeles County (LACM) have documented the presence of fossil mammal bones from Pleistocene alluvial deposits at the northern and southern limits of Temescal Valley. Southeast of the Renaissance Ranch Project, at a distance of over seven miles, two localities east of Lake Elsinore produced fossil bones of a horse, *Equus* (LACM locality 6059) and those of a camel, *Camelops hesternus*

(LACM locality 5168). To the northwest at a distance of approximately 16 miles, fossil bones of a Pleistocene deer were found in Corona near the intersection of Highway 91 and Interstate-15 (LACM locality 1207). These vertebrate fossil localities are apparently the closest known to the project as recorded by the LACM.

The Division of Geological Sciences at the San Bernardino County Museum (SBCM) reported a locality (SBCM loc. 5.5.1) about four miles northwest of the project consisting of a fossil horse tooth of the Pleistocene genus *Plesippus* sp., mixed with plant fossils that were collected in 1965 (Hoover et al. 2004). The report suggested the horse tooth was collected from the coarse, arkosic sandstones observed in the locality area, mapped as Quaternary very old alluvial fan deposits (Hoover et al. 2004). Oddly, the plant fossils were reportedly derived from the Paleocene Silverado Formation, outcrops of which are nearby, indicating the locality consists of a mixed collection.

The Silverado Formation (historically termed the Martinez Formation) in the Temescal Valley is characterized by occurring as relatively small, scattered outcrops, but is nevertheless fossiliferous. Engel (1959) records the presence of Paleocene molluscan fossils from his locality El-2 in Section 12 within the southernmost portion of the *Lake Mathews, California* USGS quadrangle, about three miles northwest of the Renaissance Ranch Project, and lists nine bivalve and four gastropod species. A similar locality, El-1, is located approximately a half mile southeast of El-2, and included plant remains as well as marine shell fossils.

## V. PALEONTOLOGICAL SENSITIVITY

A “paleontological sensitivity map” generated by the Riverside County Transportation and Land Management Agency in June 2020 (Figure 4 in Appendix B) ranks most of the project as having a High Paleontological Potential/Sensitivity (“High A”), which is:

[B]ased on [the presence of] geologic formations or mappable rock units that contain fossilized body elements, and trace fossils such as tracks, nests and eggs. These fossils occur on or below the surface.

The category “High A” indicates that fossils are likely to be encountered at the surface and may be impacted during excavation by construction activities. Areas mapped as very old alluvial fan sediments (area labeled Qvof” in Figure 3 in Appendix B) are indicated as having a High Potential/Sensitivity to yield nonrenewable paleontological resources (*i.e.*, fossils), are shown in pale red tint on Figure 4 (Appendix B). Formations that are typically assigned a “high” paleontological sensitivity by the County include Quaternary old and very old alluvial fan deposits, including the nearby deposits that are the source for the fossil horse tooth discussed above. Across the Inland Empire, these types of Quaternary sediments have a well-documented record of yielding important Ice Age, and older, fossils, such as large terrestrial vertebrates (*e.g.*, bison, mammoth,

mastodon, horse, camel, giant ground sloth, short-faced bears, sabre-tooth cats, and others [e.g., Jefferson 1991]). Areas having a low paleontological sensitivity in green include young (upper Pleistocene to Holocene) surficial sedimentary deposits and are mapped within the northwest corner of the project. A “Low” Paleontological Potential/Sensitivity (light green areas on Figure 4 in Appendix B) is defined as:

Following a literature search, records check and a field survey, areas may be determined by a qualified vertebrate paleontologist as having low potential for containing significant paleontological resources subject to adverse impacts.

Assignment of a “Low” sensitivity reflects rocks that generally do not contain fossils, such as modern (Holocene) sedimentary deposits and igneous rocks. Holocene deposits are generally too young to yield fossils. Since a “Low” assignment has been applied to a wide spectrum of rock units, the Riverside County Land Information System has suggested that a qualified professional conduct an inspection of the site to determine its suitability to yield fossils. Due to the inaccurate scaling by the County’s website, the colored areas in Figure 4 do not closely match the associated geology as shown on Figure 3 (see Appendix B).

## **VI. PALEONTOLOGICAL RESOURCE IMPACT MITIGATION PROGRAM**

The existence of potentially fossiliferous Quaternary very old alluvial fan deposits mapped across most of the project (“Qvof” on Figure 3 [Appendix B]); the known occurrence of terrestrial vertebrate fossils at shallow depths from Quaternary older alluvial fan sediments across the Inland Empire of western Riverside County; and the “High” paleontological sensitivity rating typically assigned to Quaternary older alluvial fan sediments for yielding paleontological resources all support the recommendation that paleontological monitoring be required during mass grading and excavation activities in undisturbed Quaternary older alluvial fan sediments in order to mitigate any adverse impacts (loss or destruction) to potential nonrenewable paleontological resources. Full-time monitoring of undisturbed very old alluvial fan deposits at the Renaissance Ranch Project is recommended starting at the surface. For the young alluvial fan deposits at the northwest corner of the project and the young sandy wash deposits along the east side of the project, periodic “spot check” monitoring is recommended, consisting of approximately one to three scheduled site visits per week by a paleontological monitor during construction ground disturbance. If fossils are discovered, full-time monitoring for paleontological resources is warranted.

In accordance with the Planning Department of Riverside County, submittal of a PRIMP is required prior to issuance of grading permits. The PRIMP is based on the recommendations stated above. The specific guidelines contained within a PRIMP are outlined below, which are consistent with the provisions of CEQA, the County of Riverside, and the guidelines of the Society



of Vertebrate Paleontology (2010) for any mass grading and excavation-related activities, including utility trenching, during construction within the project. Paleontological monitoring may be reduced if, based upon the observations and recommendations of the professional-level project paleontologist, the excavations are only occurring in, for example, coarse-grained sediments that are unlikely to yield paleontological resources. The following list addresses the required items typically included with PRIMP reports in Riverside County:

1. Description of the proposed site and planned grading operations: See Section I of this report.
2. Description of the level of monitoring required for all earthmoving activities in the project area: All mass grading, excavation, drilling, and trenching activities within the very old alluvial fan deposits (“Qvof”), which underlie the majority of the project, starting at the surface are to be monitored full-time for paleontological resources. Prior to initiation of any grading, drilling, and/or excavation activities, a preconstruction meeting will be held and attended by the paleontologist of record, representatives of the grading contractor and subcontractors, the project owner or developer, and a representative of the lead agency. The nature of potential paleontological resources shall be discussed, as well as the protocol that is to be implemented following discovery of any fossiliferous materials. For earth moving within young alluvial fan deposits (“Qyf<sub>a</sub>”) and young sandy wash deposits (“Qyw<sub>a</sub>”) mapped at the project, periodic “spot check” monitoring is recommended, consisting of approximately one to three scheduled site visits per week by a paleontological monitor during construction ground disturbance. If fossils are discovered, full-time monitoring for paleontological resources is warranted.
3. Identifications and qualifications of the qualified paleontological monitor to be employed for grading operations monitoring: The primary paleontological monitor will either be Todd A. Wirths, the project paleontologist and a California Professional Geologist (P.G. No. 7588), who has numerous years of experience doing geological investigations, paleontological monitoring, and salvage recovery in southern and central California, or Clarence L. Hoff, who has approximately 17 years of experience with BFGA doing paleontological monitoring and salvage recovery in the southern California area. Other qualified BFGA staff may also conduct monitoring under the direction and supervision of Mr. Wirths.
4. Identification of personnel with authority and responsibility to temporarily halt or divert grading equipment to allow for the recovery of large specimens: In the field, the primary monitor (Todd A. Wirths or Clarence L. Hoff) or the monitors under the direction and supervision of Mr. Wirths will be the responsible persons on-site with the assigned authority and responsibility to control all grading operations that might adversely affect any salvage efforts. Todd A. Wirths, P.G., the principal investigator

for paleontology for this project and a listed qualified paleontologist with the County of Riverside, will be the primary person for this task.

5. Direction for any fossil discoveries to be immediately reported to the property owner, who in turn, will immediately notify the County of Riverside of the discovery: All paleontological monitors automatically inform the BFSAs office upon the discovery of fossils while monitoring. It is BFSAs practice to immediately notify all concerned parties (client and lead agency [*i.e.*, the County of Riverside]) at the time of any discovery.
6. Means and methods to be employed by the paleontological monitor to quickly salvage fossils as they are unearthed to avoid construction delays: Paleontological salvage on trenching activities is typically from the trench spoils and does not delay the trenching activity. Fossils are collected and placed in cardboard flats or plastic buckets and identified by field number, collector, and date collected. Notes are taken on the map location and stratigraphy of the site, and the site is photographed before it is vacated and the fossils removed to a safe place. On mass grading projects, any discovered fossil site is protected by red flagging to prevent it from being overrun by earthmovers (scrapers) before salvage begins. All grading activities within 50 feet of the discovery site should be suspended until fossil recovery has been completed. Fossils are collected in a similar manner, with notes and photographs being taken before removing fossils. If the site involves a large terrestrial vertebrate, for example, large bone(s) or a mammoth tusk, that is/are too large to be easily removed by a single monitor, a field crew will be sent to the site to excavate around the find, encase the discovery within a plaster jacket, and remove it after the plaster has set. For large fossils, use of the contractor's construction equipment is solicited to remove the jacket to a safe location before it is returned to the BFSAs laboratory facility. It sometimes happens that fossils are found by construction workers when a paleontological monitor is not on site, or is occupied elsewhere on a grading project. In such cases, all work should be halted within 50 feet of the discovery location until it can be properly evaluated by the paleontological monitor or professional paleontologist.
7. Sampling of sediments that are likely to contain the remains of small fossil invertebrates and vertebrates: Sediments containing small invertebrate and/or vertebrate fossils are considered just as important as larger fossils and will always be collected (see below). When vertebrate fossil remains are recovered, additional sediment samples will be taken from the same location to process for micro-vertebrate specimens.
8. Procedures and protocol for collecting and processing samples and specimens: Isolated fossils are collected by hand, wrapped in paper, and placed in temporary collecting flats or five-gallon buckets. Notes are taken on the map location and stratigraphy of the site, and the site is photographed before it is vacated and the fossils

- removed to a safe place. Particularly small invertebrate fossils typically represent multiple specimens of a limited number of organisms, and a scientifically suitable sample can be obtained by one to several five-gallon buckets of fossiliferous sediment. If it is possible to dry-screen the sediment in the field, a concentrated sample may consist of one or two buckets of material. For micro-vertebrate fossils, the standard test is usually the observed presence of small pieces of bone within the sediments. If bone is present, as many as 20 to 40 five-gallon buckets of sediment can be collected and returned to a separate facility to wet screen the sediment. If, after five buckets have been wet-screened and have failed to yield any micro-vertebrate or other fossil material under microscopic examination, then this process can be terminated. In the laboratory, any recovered fossils are cleaned of extraneous matrix, any breaks are repaired, and the specimen, if necessary, is stabilized by soaking in an archivally approved acrylic hardener (e.g., a solution of acetone and Paraloid B-72).
9. Fossil identification and curation procedures to be employed: Fossils will be identified by an adjunct invertebrate or vertebrate paleontology specialist, depending upon the group of fossils needing identification (e.g., mollusks, reptiles, birds, mammals, or fish). Standard museum curation steps will be utilized by, or under the direct supervision of, the principal investigator, who has nine years of paleontological curatorial experience. Curation steps include cleaning, preparing, sorting, identifying, painting, numbering, and labeling all specimens before submittal to the receiving institution.
  10. Identification of the permanent repository to receive any recovered fossil material: Pursuant to the County of Riverside's "SABER" Policy, paleontological materials (fossils) found in Riverside County should, by preference, be directed to the Western Science Center on Searl Road in Hemet, Riverside County, California. A written agreement between the project developer and the preferred archival institution should be in hand before grading begins. The project owner/developer will assume financial responsibility for any institutional curation fees for the project.
  11. All pertinent exhibits, maps, and references: See text and appendices of this PRIMP report.
  12. Procedures for reporting findings: A final written report will be produced by BFSA and authored by the principal investigator, California Professional Geologist Todd A. Wirths, P.G. 7588, an approved Riverside County paleontologist, and submitted to the County Geologist of Riverside County at the conclusion of grading activities for the project. The report will include sections on general background information, previous studies (both geologic and paleontologic), results of findings and analysis, discussion of all recovered fossils, and a fossil list identified to the lowest taxonomic level possible, as well as a list of references cited and index and locality maps and graphics to show the locations of all fossil localities, etc. A letter documenting receipt and

acceptance of the fossil collections by the receiving institution must be included in the final report, a copy of which is to be archived with the fossil collection. If fossils are not recovered during the project, the final report will be in a shortened letter format.

13. Identification and acknowledgement of the developer for the content of the PRIMP, as well as acceptance of financial responsibility for monitoring, reporting, and curation fees: Brian F. Smith, President of BFSAs, acknowledges that the developer or owner will assume financial responsibility for the PRIMP and any associated curation fees for the project.
14. All reports shall be signed by the project paleontologist: Todd A. Wirths, P.G. 7588, the project paleontologist for the Renaissance Ranch Project and a California Professional Geologist, will be the author signing all paleontological reports related to the project.

## **VII. CERTIFICATION**

I hereby certify that the statements furnished above and in the attached exhibits present the data and information required for this paleontological report, and that the facts, statements, and information presented are true and correct to the best of my knowledge and belief, and have been compiled in accordance with CEQA criteria.

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February 5, 2021

Todd A. Wirths  
Senior Paleontologist  
California Professional Geologist No. 7588

Date

## **VIII. REFERENCES CITED**

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- Society of Vertebrate Paleontology. 2010. Standard Procedures for the Assessment and Mitigation of Adverse Impacts to Paleontological Resources; by the SVP Impact Mitigation Guidelines Revision Committee: [http://vertpaleo.org/Membership/Member-Ethics/SVP\\_Impact\\_Mitigation\\_Guidelines.aspx](http://vertpaleo.org/Membership/Member-Ethics/SVP_Impact_Mitigation_Guidelines.aspx).

**APPENDIX A**

**Qualifications of Key Personnel**

# Todd A. Wirths, MS, PG No. 7588

## Senior Paleontologist

Brian F. Smith and Associates, Inc.

14010 Poway Road • Suite A •

Phone: (858) 679-8218 • Fax: (858) 679-9896 • E-Mail: twirths@bfsa-ca.com



## Education

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**Master of Science, Geological Sciences, San Diego State University, California** 1995

**Bachelor of Arts, Earth Sciences, University of California, Santa Cruz** 1992

## Professional Certifications

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California Professional Geologist #7588, 2003  
Riverside County Approved Paleontologist  
San Diego County Qualified Paleontologist  
Orange County Certified Paleontologist  
OSHA HAZWOPER 40-hour trained; current 8-hour annual refresher

## Professional Memberships

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Board member, San Diego Geological Society  
San Diego Association of Geologists; past President (2012) and Vice President (2011)  
South Coast Geological Society  
Southern California Paleontological Society

## Experience

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Mr. Wirths has more than a dozen years of professional experience as a senior-level paleontologist throughout southern California. He is also a certified California Professional Geologist. At BFSa, Mr. Wirths conducts on-site paleontological monitoring, trains and supervises junior staff, and performs all research and reporting duties for locations throughout Los Angeles, Ventura, San Bernardino, Riverside, Orange, San Diego, and Imperial Counties. Mr. Wirths was formerly a senior project manager conducting environmental investigations and remediation projects for petroleum hydrocarbon-impacted sites across southern California.

## Selected Recent Reports

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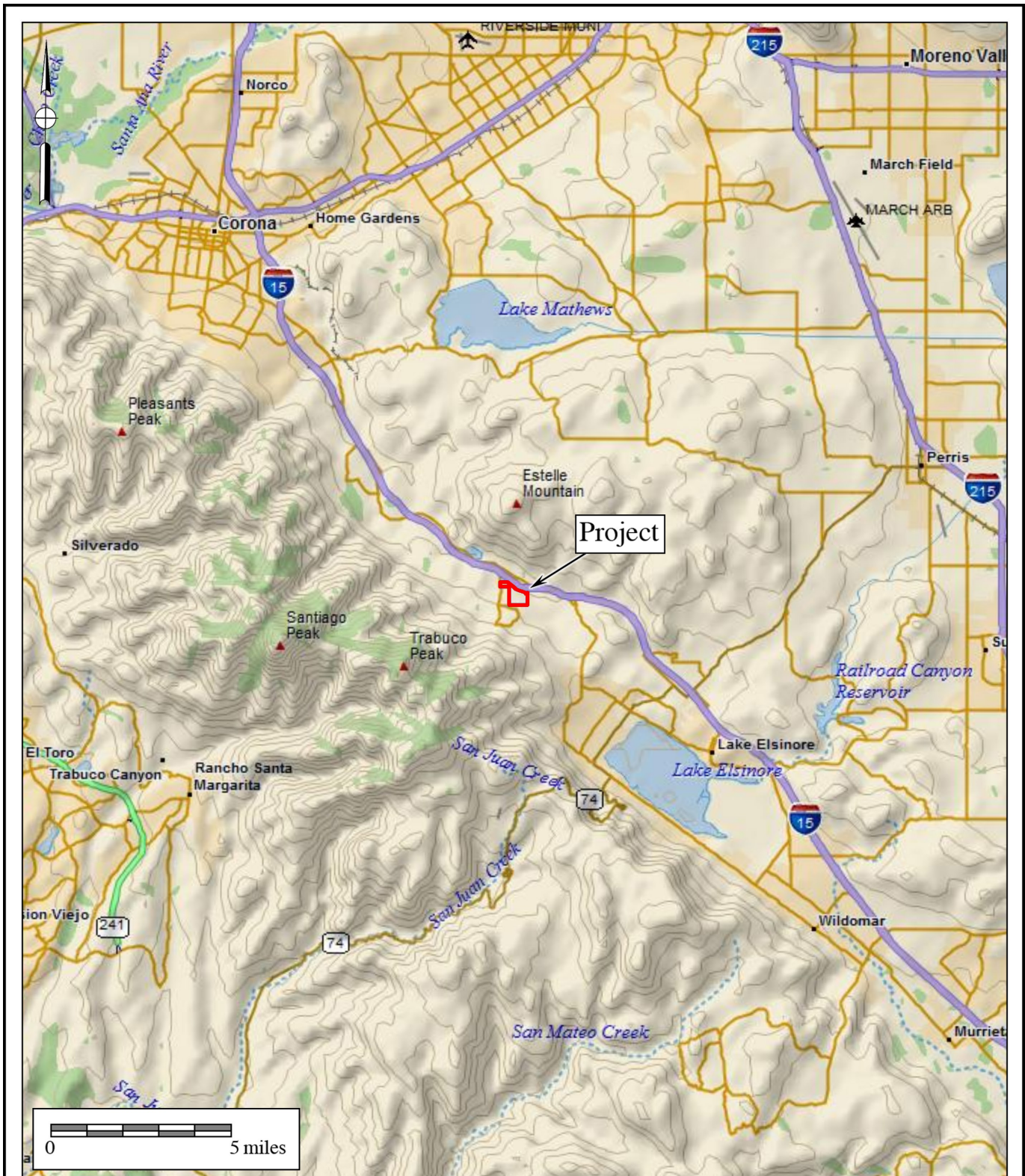
- 2019 *Paleontological Assessment for the Eastvale Self Storage Project, City of Eastvale, Riverside County, California.* Prepared for Gossett Development, Inc. Report on file at Brian F. Smith and Associates, Inc., Poway, California.
- 2019 *Paleontological Resource Impact Mitigation Monitoring Program for the IPT Perris DC III Western/Nandina Project, Perris, Riverside County, California.* Prepared for IPT/Black Creek Group. Report on file at Brian F. Smith and Associates, Inc., Poway, California.

- 2019 *Paleontological Assessment for the 10407 Elm Avenue Project, City of Fontana, San Bernardino County, California.* Prepared for Advantage Environmental Consultants, Inc. Report on file at Brian F. Smith and Associates, Inc., Poway, California.
- 2019 *Paleontological Assessment for the 10575 Foothill Boulevard Project, City of Rancho Cucamonga, San Bernardino County, California.* Prepared for T&B Planning, Inc. Report on file at Brian F. Smith and Associates, Inc., Poway, California.
- 2019 *Paleontological Resource Impact Mitigation Program (PRIMP) for the Speedway TPM 37676 Project, Temescal Valley, Riverside County, California.* Prepared for Speedway Development. Report on file at Brian F. Smith and Associates, Inc., Poway, California.
- 2019 *Paleontological Assessment for the Natwar Project, Perris, Riverside County, California.* Prepared for Advantage Environmental Consultants, LLC. Report on file at Brian F. Smith and Associates, Inc., Poway, California.
- 2019 *Paleontological Resource and Mitigation Monitoring Assessment, Beyond Food Mart, City of Perris, Riverside County, California.* Prepared for T&B Planning, Inc. Report on file at Brian F. Smith and Associates, Inc., Poway, California.
- 2019 *Paleontological Assessment for the MorningStar Marguerite Project, Mission Viejo, Orange County, California.* Prepared for T&B Planning. Report on file at Brian F. Smith and Associates, Inc., Poway, California.
- 2019 *Paleontological Monitoring Report for the West Markham Project (TR 33587), City of Perris, Riverside County, California.* Prepared for Markham JP/ARA, LLC. Report on file at Brian F. Smith and Associates, Inc., Poway, California.
- 2019 *Paleontological Monitoring and Mitigation Report for the Artesa at Menifee Town Center Project Site, Sherman Road and La Piedra Road, Menifee, Riverside County, California.* Prepared for MBK Real Estate. Report on file at Brian F. Smith and Associates, Inc., Poway, California.
- 2019 *Paleontological Monitoring Report, Diarq Residence, La Jolla, City of San Diego, San Diego County, California.* Prepared for West Way Drive, LLC. Report on file at Brian F. Smith and Associates, Inc., Poway, California.
- 2019 *Paleontological Monitoring Report for the Nimitz Crossing Project, City of San Diego.* Prepared for Voltaire 24, LP. Report on file at Brian F. Smith and Associates, Inc., Poway, California.
- 2019 *Paleontological Resource Impact Mitigation Program (PRIMP) for the Jack Rabbit Trail Logistics Center Project, City of Beaumont, Riverside County, California.* Prepared for JRT BP 1, LLC. Report on file at Brian F. Smith and Associates, Inc., Poway, California.
- 2020 *Paleontological Monitoring Report for the Oceanside Beachfront Resort Project, Oceanside, San California.* Prepared for S.D. Malkin Properties. Report on file at Brian F. Smith and Associates, Inc., Poway, California.
- 2020 *Paleontological Resource Impact Mitigation Program for the Nakase Project, Lake Forest, Orange County, San California.* Prepared for Glenn Lukos Associates, Inc. Report on file at Brian F. Smith and Associates, Inc., Poway, California.



**APPENDIX B**

**Project Maps:  
General Location Map  
USGS Project Location Map  
Geologic Map  
Paleontological Sensitivity Map**



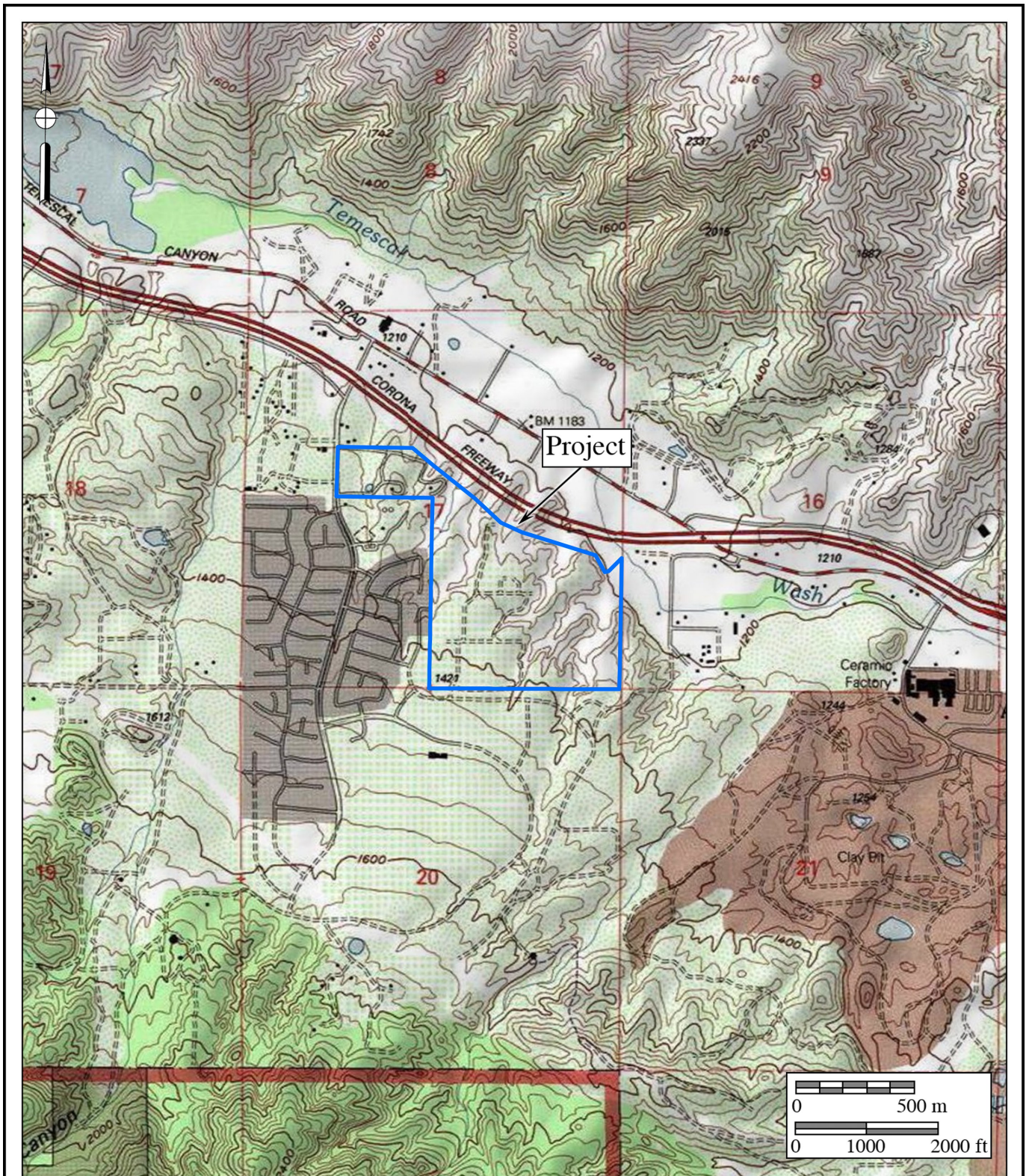
**Figure 1**

**General Location Map**

The Renaissance Ranch Project

DeLorme (1:250,000)





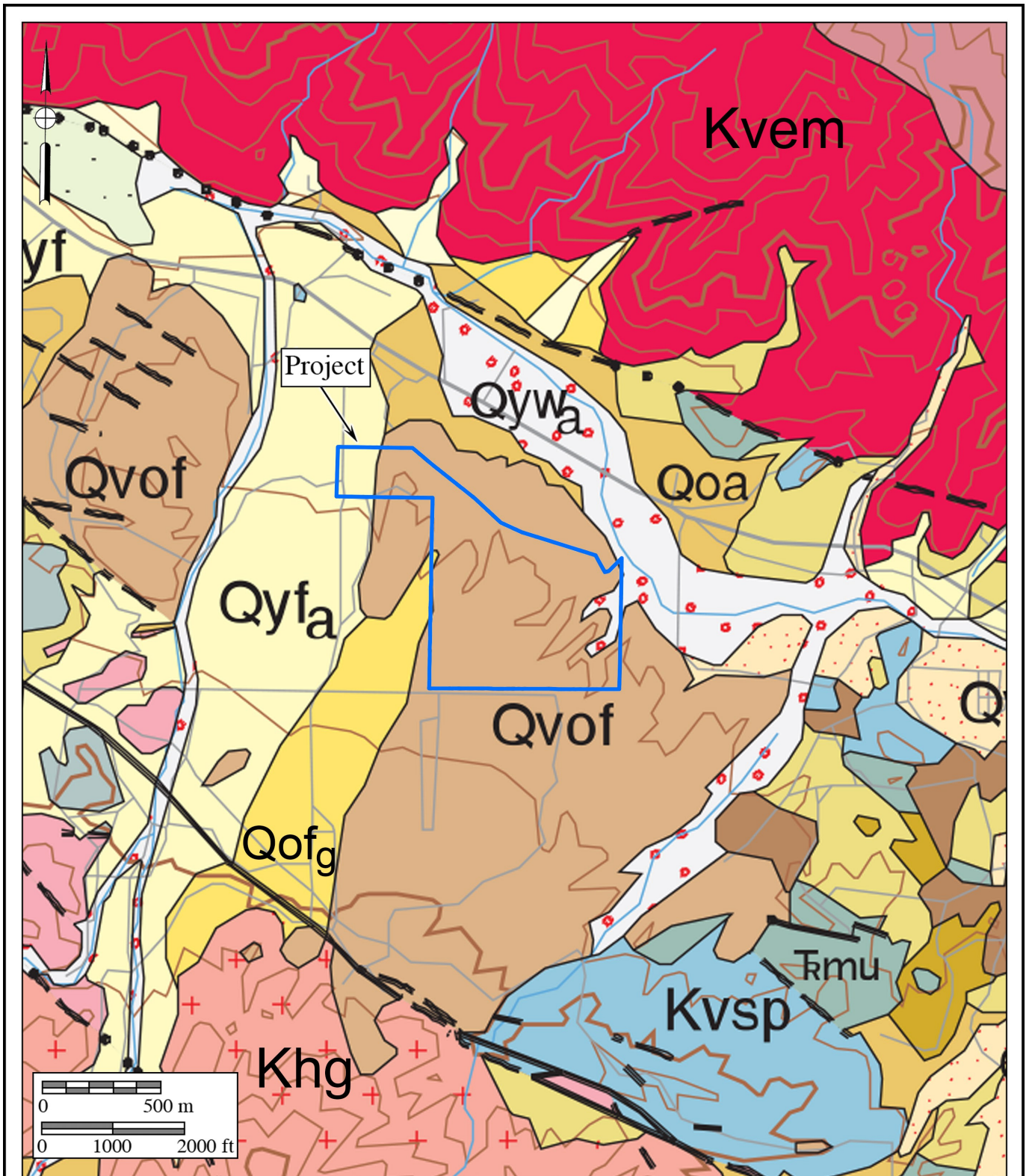
**Figure 2**

**Project Location Map**

The Renaissance Ranch Project

USGS *Alberhill* Quadrangle (7.5-minute series)

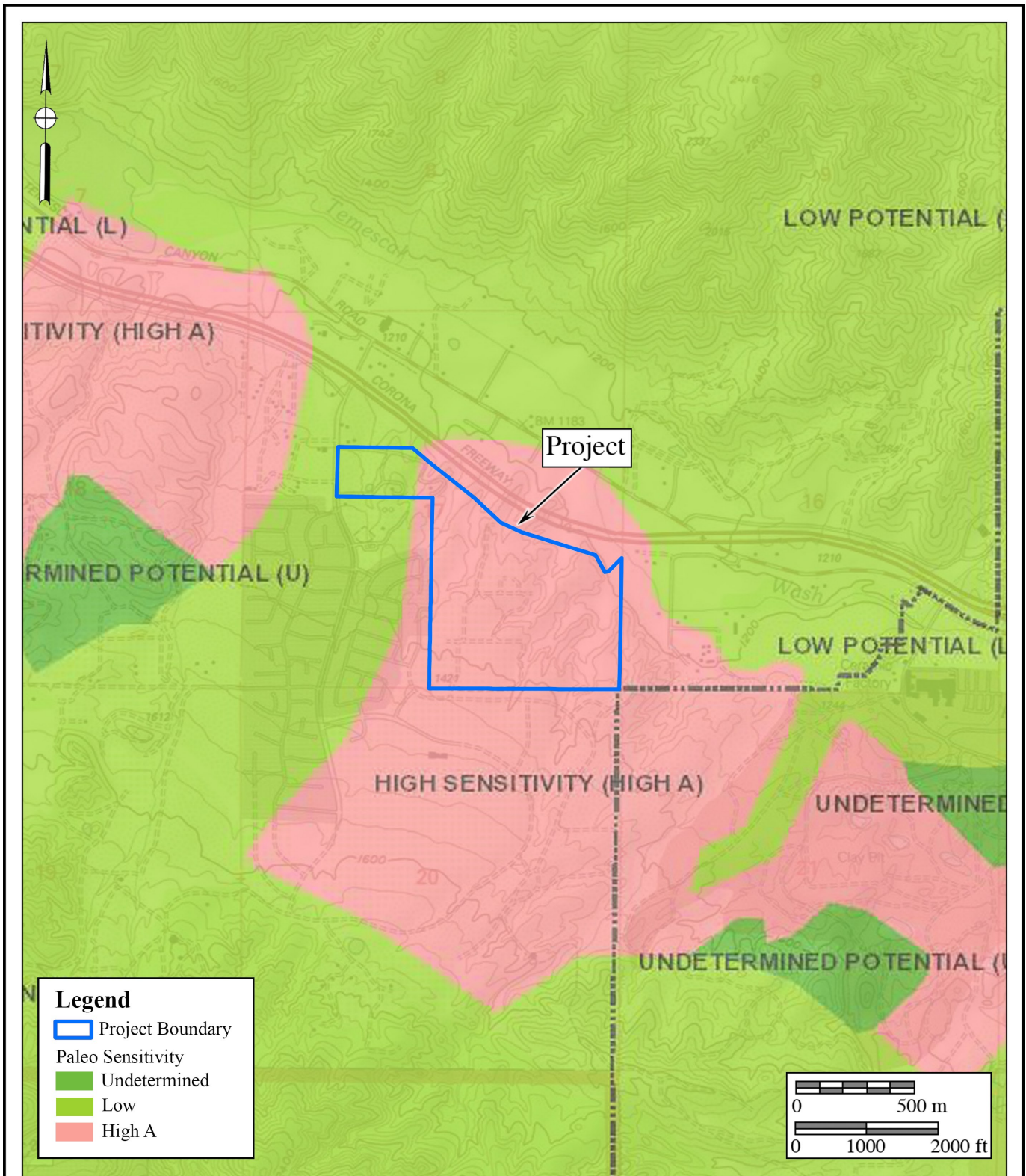




**Figure 3**  
**Geologic Map**

The Renaissance Ranch Project  
 Geology after Morton and Miller (2006)





**Figure 4**

**Paleontological Sensitivity Map**

The Renaissance Ranch Project

After Riverside County Land Information System

